DOCUMENT RESUME

ED 069 900 VT 017 657

AUTHOR	Cullen, Thomas D.; Henrich, Robert R.
TITLE	A Survey of Practices in Hospital Pharmacies. The UCLA Allied Health Professions Project.
INSTITUTION	California Univ., Los Angeles. Div. of Vocational Education.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C. Bureau of Research.
PUB DATE	Dec 71
NOTE	95p.
AVAILABLE FROM	University of California, Allied Health Professions Project, 1003 Wilshire Blvd., Santa Monica, California 90401 ($3.00)
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Curriculum Development; *Health Occupations Education; Health Services; Job Analysis; Occupational Surveys; Paramedical Occupations; *Pharmacists; *Subprofessionals; Task Analysis; *Task Performance; Technical Education
IDENTIFIERS	*Pharmacy Technicians; UCLA Allied Health Professions Projects

ABSTRACT

A survey was conducted as part of the UCLA Allied Health Professions Project to determine what procedures are used in health care facility pharmacies for the performance of tasks previously selected for inclusion in a proposed curriculum for pharmacy technicians. Questionnaires were distributed to a national sample of 48 health care facilities, and the replies received from 31 chief pharmacists were analyzed. The survey results revealed that dispensing and purchasing are two subjects that should be given first priority in the development of the curriculum. Bulk compounding, prepackaging, and sterile solution manufacturing may be assigned a lower order of priority, while training in administration of pharmaceuticals does not seem to be necessary for pharmacy technicians. It was concluded that the results of this survey could be used to supplement the task list previously developed as a basis for constructing a pharmacy technician curriculum. The survey questionnaire and other study materials are appended. (Author/SB)

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THE UCLA ALLIED HEALTH PROFESSIONS PROJECT

A Survey of Practices in HOSPITAL PHARMACIES

VT017657

UNIVERSITY OF CALIFORNIA, LOS ANGELES
DIVISION OF VOCATIONAL EDUCATION
ALLIED HEALTH PROFESSIONS PROJECT

DECEMBER 1971

UNIVERSITY OF CALIFORNIA, LOS ANGELES
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A SURVEY OF PRACTICES IN
HOSPITAL PHARMACIES

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Research and Demonstration Grant 8-0627
U.S. Office of Education, Bureau of Research
Department of Health, Education, and Welfare

UNIVERSITY OF CALIFORNIA, LOS ANGELES
Division of Vocational Education
Allied Health Professions Project

Mary Ellison, Editor

December 1971

This publication was prepared pursuant to Grant No. 8-0627, Office of Education, U.S. Department of Health, Education, and Welfare. Points of view or opinions expressed were developed on the basis of survey data. They do not, therefore, necessarily represent official Office of Education position or policy.

FOREWORD

The Division of Vocational Education, University of California, is an administrative unit of the University which is concerned with responsibilities for research, teacher education, and public service in the broad area of vocational and technical education. During 1968 the Division entered into an agreement with the U.S. Office of Education to prepare curricula and instructional materials for a variety of allied health occupations. For the most part, such materials are related to pre-service and in-service instruction for programs ranging from on-the-job training through the Associate degree level.

A National Advisory Committee, drawn from government, education, professional associations in the health care field, and the lay public, provides guidance and help to the over-all activities of the Allied Health Professions Project. The following individuals and institutions participate in the activities of this nationwide interdisciplinary body:

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This report summarizes the outcomes of a survey of practices in health care facility pharmacies throughout the nation. Tasks that would be appropriate for performance by non-professional pharmacy workers had been identified previously by the National Technical Advisory Committee for the Pharmacy Technician; the purpose of the survey was to determine what procedures are commonly used in the performance of these tasks.

The concept of the Pharmacy Technician as an occupational category is so new that neither the U.S. Office of Education nor the Department of Labor (Dictionary of Occupational Titles) has established a code number for the job title.

Melvin L. Barlow, Director
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PREFACE

With the increase in pharmaceutical services expected in the next decade, there is a growing need for someone who can assist the pharmacist in the performance of routine operations that do not require professional judgments. Large numbers of non-professional people already are working in the field of pharmacy, but there is much variation in their training and qualifications. The tendency has been for each pharmacy to have developed its own non-professional assistant with training oriented toward the individual needs of the pharmacy.

The pharmacy profession has for some time been concerned with defining the role of the non-professional pharmacy worker and with establishing standards and training programs for the emerging occupation of Pharmacy Technician. This occupation, therefore, was selected by the Allied Health Professions Project as one of those for which the project would undertake development of a curriculum.

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SUMMARY

A survey was conducted to determine what procedures are used in health care facility pharmacies for the performance of tasks previously selected for inclusion in a proposed curriculum for Pharmacy Technicians. Questionnaires were distributed to a national sample of 48 health care facilities, and the replies received from 31 Chief Pharmacists were analyzed. Frequencies of response to the questionnaire items were tabulated separately for large, medium-sized, and small pharmacies. Some variations in reported practices were found to be related to pharmacy size.

The survey results supplement the previously developed Pharmacy Technician Task List by providing information about details of procedure that can be incorporated into the Pharmacy Technician curriculum. They also indicate what order of priority might be given to the principal functional areas represented in the task list, when a curriculum is constructed. Dispensing and purchasing, which are done in all pharmacies, can be considered as the primary subjects to be taught in a Pharmacy Technician curriculum. Bulk compounding, prepackaging, and sterile solution manufacturing can be assigned a lower order of priority, but nevertheless deserve a place in the curriculum because they are activities likely to be performed in the larger pharmacies that employ non-professional workers. Training in the administration of pharmaceuticals, however, does not seem to be necessary for Pharmacy Technicians.

I. INTRODUCTION

Early in 1968, the U.S. Office of Education invited proposals for research and development programs to stimulate the recruitment and training of manpower for the allied health occupations. A proposal submitted by the Division of Vocational Education, University of California, Los Angeles, was approved, and a program designated as the Allied Health Professions Project (AHPP) was funded for a four-year period. The objectives of the program are to develop curricula and educational materials for allied health occupations at levels ranging from pre-service and in-service training to junior college Associate degree programs, and to provide means for disseminating the materials, evaluating their effectiveness, and updating them to conform with occupational changes.

The initial steps leading to the development of curricula for each selected occupation involve identification and listing of the tasks that may be performed in a specified functional area, and verification of their appropriateness to the occupational category under consideration. One of the occupations for which the AHPP proposed to develop curricula is Medical Facility Pharmacy Technician. This is an emerging occupation that is as yet not functionally well-defined. There exists no generic non-professional pharmacy worker whose activities can be surveyed to define the occupation by a listing of the tasks that typically are performed. Verification of the task list proposed as a basis for construction of the Pharmacy Technician curriculum, therefore, was accomplished by its submission to the judgment of a committee of experts, rather than through a field survey. The National Technical Advisory Committee for the Pharmacy Technician, whose membership is shown in Appendix A, reviewed the list and identified the tasks that were deemed appropriate for performance by a non-professional Pharmacy Technician. The final Pharmacy Technician Task List appears in the published report on the development and validation of the task inventory.*

While this task list serves as a basic guide to what should be included in a Pharmacy Technician curriculum, it was felt that development of the curriculum would be facilitated if further information were obtained about performance of these tasks. A survey of health care facility pharmacies, therefore, was conducted to determine what tasks are most widely performed and what specific procedures are most commonly employed in their performance. The facilities surveyed were a sample previously selected by the Allied Health

*Robert R. Henrich and Katherine L. Goldsmith, "Hospital Pharmacy Technician Project: Development and Validation of the Task Inventory." Allied Health Professions Project, February 1971.

Professions Project to provide a geographically balanced representation of medical care systems and personnel in the United States. The results reported here are based on responses from 31 of these facilities, with total pharmacy personnel of 243.

II. PROCEDURE

A. The Survey Instrument

The survey instrument was a questionnaire designed to obtain information about the practices followed in health care facility pharmacies. The questionnaire did not cover all aspects of pharmaceutical work; it was concerned mainly with identifying procedures that might be used in the performance of tasks that the National Technical Advisory Committee had determined to be appropriate for non-professional pharmacy workers. The principal areas touched upon were dispensing, bulk compounding, pre-packaging, sterile solution manufacturing, purchasing (including inventory, receiving, and storage), and the delivery and administration of medications.

The questionnaire is reproduced in Appendix B. Many of the items called for only a "yes" or "no" answer. Others required choices among listed alternatives. Provision was made for write-in responses whenever the alternatives provided in the questionnaire might not be adequate to describe all of the practices followed in a particular pharmacy. A few items required the respondent to write a brief description of the procedure used in his pharmacy.

B. The Survey Sample

The respondents selected for the survey were the Chief Pharmacists in 48 health care facilities in six metropolitan areas: Birmingham, Boston, Chicago, Denver, Los Angeles, and Seattle. Two large hospitals (200 or more beds), two medium-sized hospitals (100 to 199 beds), two small hospitals (fewer than 100 beds), and two extended-care facilities within a 200-mile radius for each city previously had been selected to comprise the national sample for surveys conducted by the Allied Health Professions Project. Selections within the metropolitan areas first were made randomly from among facilities accredited by the Joint Commission on Accreditation of the American Hospital Association and approved by Medicare. Local hospital associations then were contacted and substitutions were made for any of the initially chosen facilities that were considered to be uncooperative. Other substitutions were made later for facilities that withdrew from the survey. The composition of the facility sample at the time the present survey was conducted is shown in Appendix C.

One copy of the questionnaire was sent to a member of the staff at each facility who

had previously agreed to assist in administration of the survey. He was asked to give the questionnaire to the head of the pharmacy department or the person responsible for providing pharmacy services to the facility. Thirty-one of the 48 questionnaires – almost two-thirds – were completed and returned. All respondents were registered pharmicists and each was the chief pharmacist at his facility. Questionnaires were received from 30 of the 36 hospitals in the sample, but from only one of the 12 extended-care facilities. Apparently the low rate of return simply reflects the fact that few extended-care facilities operate their own pharmacies.

C. Data Analysis

The survey data were analyzed by counting the frequencies of responses to the questionnaire items. Separate tabulations were made of the frequencies of response to each alternative for all multiple-choice items. All write-in responses were coded and tabulated. In the analysis of some items, the frequencies of certain combinations of responses to more than one item (or to more than one alternative within an item) also were determined.

Responses from large, medium-sized, and small facilities were tabulated separately and examined for evidence of differences in practices among facilities of different size. No such differences were apparent in the responses to most of the questionnaire items, and most of the survey results, therefore, had been reported in terms of response frequencies for the total sample of 31 responding pharmacies. Whenever the frequency tabulations suggested that size might have some relation to differences in procedures, however, the results have been presented to show the responses for large, medium-sized, and small pharmacy departments. A classification in terms of department size, as defined by the number of personnel, was used because it seemed to give a slightly clearer picture of the existing differences than did the initial classification in terms of facility size.

Department size was defined as follows:

> Large Department (L): two or more pharmacists, and a department staff of more than five;
>
> Medium-sized Department (M): two or more pharmacists, but a total staff in the department of not more than five (professionals plus non-professionals);
>
> Small Department (S): One pharmacist, with or without non-professional assistance.

The numbers of pharmacy departments of each size in the sample, as well as the total numbers of professionals and non-professionals employed in each category of department,

are shown in Table 1. It can be seen that non-professional workers are employed mainly in large pharmacies. This fact should be taken into consideration in the construction of curricula for non-professional workers whenever differences in procedures are noted between larger and smaller pharmacies.

Table 1

Classification of 31 Pharmacies By Department Size

Department Size	No. of Pharmacies	Personnel in Pharmacies		Total Personnel
		Professionals	Non-Professionals	
Small (one pharmacist	9	9	4	13
Medium (two or more pharmacists and 2-5 total staff)	10	31	9	40
Large (total staff of more than 5)	12	108	82	190
Total	31	148	95	243

The survey results are presented in Tables 2 to 34. An index to the tables and questionnaire items is provided at the end of Appendix B. The first section of the index (B-2) shows which table contains the analysis of the responses to each item; the second section (B-3) is an index to the item content of each table.

III. RESULTS

A. Disposition of medications brought to the hospital by patients (Table 2)

In most hospitals medications brought to the hospital by a patient may not be used within the hospital. Usually they are either sent home or stored and returned to the patient on discharge. A number of hospitals, however, permit use of the medications for filling orders after they have been identified and relabeled by the hospital pharmacy. Some of these hospitals follow a policy of dispensing the patient's own medications only for orders that cannot be filled from pharmacy stocks. When the medications are kept in the hospital, whether utilized or not, they are usually stored on the nursing station rather than within the pharmacy.

Table 2

Disposition of Medications Brought to Hospital by Patients (N=31)

Practices	Number of Pharmacies
Medications are not used by patient	21
Medications may be dispensed to patient on doctor's orders after identification by Pharmacy	10
Pharmacy stores medications	6
Pharmacy does not participate in disposition of medications	25

B. Receipt of medication orders (Tables 3, 4, and 5)

The most common methods of receipt of medication orders are pick-up by pharmacy personnel and delivery by messenger. One or the other of these methods is the one most frequently used in the majority of pharmacies. Orders are picked up by pharmacy personnel in all the small pharmacies in the sample, and in about half of the large and medium-sized pharmacies. None of the small pharmacies uses either pneumatic tubes or dumbwaiters for delivery of orders. Where pneumatic tubes are used, mainly in large pharmacies, they are often the method by which most orders are delivered (Table 3, following page).

Table 3

Receipt of Medication Orders
(N=31)

Practices	Total Number	By size of pharmacies		
		L	M	S
Methods of receipt*				
Pickup by pharmacy personnel	20	5	6	9
Delivery by messenger	18	8	4	6
Delivery by pneumatic tube	11	8	3	0
Delivery by ward personnel	10	2	4	4
Delivery by dumbwaiter	5	1	4	0
Method most frequently used				
Pickup by pharmacy personnel	10	2	4	4
Delivery by messenger	10	4	3	3
Delivery by pneumatic tube	6	5	1	0
Delivery by ward personnel	3	0	1	2
Delivery by dumbwaiter	2	1	1	0
Pharmacist checks dosages on medication orders	26	9	9	8
Pharmacist does not check dosages	5	3	1	1

*Most pharmacies use more than one method

It is the practice in most pharmacies for the pharmacist to check the dosages on medication orders against the standard dosages for the medications.

Copies of orders transcribed by nurses are used in the majority of hospitals. Most orders usually are received in this form, and in a number of pharmacies it is the only form in which orders are received (Table 4, Page 11). NCR duplications are often used in large pharmacies but not in small pharmacies, and when used they are likely to be the form in which most orders are received. Two of the pharmacies in the sample use NCR duplications exclusively.

Physician's written orders and phone orders are used in some pharmacies, but they are not used very frequently. While 27 of the pharmacies in the sample accept telephone orders, apparently few of them receive more than a very small proportion of their orders by telephone. Table 5 shows what information ordinarily is required on a telephone order. Only two of the items listed on the table – the patient's hospital number and the discontinuance date for the medication – are not required by a majority of the pharmacies that accept telephone orders.

Table 4

Forms of Medication Orders
(N=31)

Practices	Total Number	By size of pharmacies		
		L	M	S
Forms in which orders are received:*				
Copy transcribed by nurse	25	7	9	9
NCR duplication	8	7	1	0
Physician's written order	6	4	1	1
Phone order from nurse	5	1	1	3
Phone order from physician	2	0	1	1
Form in which most orders are received:				
Copy transcribed by nurse	23	5	9	9
NCR duplication	7	6	1	0
Physician's written order	1	1	0	0
Phone order from nurse	0	0	0	0
Phone order from physician	0	0	0	0

*Some pharmacies use more than one form.

Table 5

Telephone Orders
(N=31)

Practices	Number
Pharmacy accepts telephone orders	27
Pharmacy does not accept telephone orders	4
Information required on telephone orders:	
Name of patient	27
Name of drug	27
Dosage and time or frequency	26
Route of administration	24
Patient's room number	23
Name of physician	20
Patient's hospital number	7
Discontinuance date	4

C. Dispensing records (Tables 6 and 7)

In many pharmacies, copies of medication orders serve as dispensing records. Only nine of the pharmacies in the sample keep other forms of dispensing records, either in addition to or instead of copies of the medication orders. When copies of the orders are kept, there is little uniformity in the method used for filing them. The most common methods of filing are by patient's name, by prescription number, and by date, but no one of these methods is used in very many pharmacies (Table 6).

Table 6

Dispensing Records
(N=31)

Practices	Number
Pharmacy keeps copies of medication orders	16
Pharmacy keeps orders and other records	5
Pharmacy keeps other type of record only	4
Pharmacy does not keep medication orders or records	6
If copies are kept, they are filed:*	
By patient's name	7
By prescription number	7
By date of dispensing	6
By floor or ward number	3
By patient's hospital number	1
In no order	2
If other records are kept, they are in the form of:	
Card file of patient and medications	7
Floor records utilized as dispensing records**	4
The dispensing records are kept in the Pharmacy	8
The dispensing records are kept in the Medical Record Dept.	1

*Some pharmacies use more than one method of filing orders
**Two pharmacies use both card files and floor records as dispensing records.

When other dispensing records are kept, they are usually in the form of a card file of patients and medications, and they are usually kept in the pharmacy rather than in the ward or elsewhere. Table 7 (below) shows the information recorded on dispensing records by the nine pharmacies in the sample that keep such records. The only item not recorded by the majority is the discontinuance date of the medication.

Table 7

Information Recorded on Dispensing Records in Pharmacies That Keep Such Records (N=9)

Practices	Number
Name of patient	9
Name of drug	9
Dosage and time or frequency	9
Route of administration	9
Patient's room number	8
Date	7
Charge for medication	7
Type of order (STAT, PRN, etc.)	6
Name or initials of person filling order	6
Name or initials of persons checking order	6
Patient's hospital number	6
Name of physician	6
Discontinuance date	4

D. Preparation of medication labels (Tables 8, 9, and 10)

Medication labels are typed or handwritten* in most pharmacies. Few make use of any machinery for printing labels. About half of the pharmacies in the sample apply preservative

*Typing probably is the usual method. Pharmaceutical authorities do not recommend the use of handwritten labels. The questionnaire unfortunately failed to provide "typed" and "handwritten" as separate alternatives in the question dealing with label preparation.

treatment, which usually consists of covering labels with clear tape. Pharmaceutical textbooks generally recommend the use of preservative solutions, such as lacquer or varnish, in preference to tape, but very few pharmacies follow this recommendation (Table 8, below).

The principal elements of information that are placed on inpatient medication labels by nearly all pharmacies, as shown in Table 9, are the name of the patient, the name of the drug, and the patient's room number. The date and the name of the physician also are placed on labels by most pharmacies. Practices vary with respect to other items. Rate and frequency of administration, the name or initials of the person filling the order, and the discontinuance date are placed on labels by some pharmacies but not by others. Each of the remaining items listed is placed on labels by relatively few pharmacies.

Table 8

Preparation of Medication Labels
(N=31)

Practices	Number
Method of preparation:*	
Typed or handwritten	29
Manually-operated machinery	5
Rubber stamps	2
Automatic machinery	1
Preservative treatment is applied to labels	15
No preservative is applied	16
Type of preservative used:	
Clear tape (acetate, cellulose, etc.)	13
Lacquer or varnish	2

*Some pharmacies use more than one method

Table 9

Information Placed On Inpatient Medication Labels (N=31)

Practices	Number
Name of patient	31
Name of drug	31
Dosage	30
Patient's room number	27
Date	21
Name of physician	20
Route of administration	16
Frequency of administration	14
Name or initials of person filling order	13
Discontinuance date	11
Type of order (STAT, PRN, etc.)	5
Patient's hospital number	4
Prescription number	4
Number of refills permitted	4
Name or initials of person checking order	3

Labeling of outpatient medications differs slightly from labeling of inpatient medications. The prescription number ordinarily is placed on the label, and frequency of administration is more likely to appear on it than on an inpatient medication label. The patient's room number usually is not placed on the label. The other items of information most often placed on an outpatient medication label are the same as those placed on an inpatient medication label: name of the patient, the date, the name of the physician, the name of the drug, and the dosage. As in the case of inpatient medication labels, practices vary with respect to the inclusion of the other items listed in Table 10. Special cautions, of course, may be included whenever appropriate on either inpatient or outpatient medication labels.

The name of the drug always is included on an inpatient label, but it may be omitted on an outpatient label. The most common practice is to include the name of the drug unless the prescriber requests its omission. In a number of pharmacies, however, the opposite practice is followed: the name of the drug is not included on the label unless the prescriber requests its inclusion. In certain states pharmacists are required by law to include the name of the medication on all labels.

Table 10

Information Placed On Outpatient
Medication Labels In Pharmacies
That Dispense Outpatient Medications
(N=24)

Practices	Number
Name of patient	24
Date	23
Prescription number	22
Frequency of administration	22
Name of physician	21
Name of drug	18
Dosage	18
Discontinuance date	14
Name or initials of person filling order	14
Route of administration	13
Number of refills permitted	5
Patient's room number	4
Name or initials of person checking orders	3
Patient's hospital number	2
Type of order (STAT, PRN, etc.)	2

E. Storage of drugs (Table 11)

The most common methods of arranging storage of drugs in pharmacies are by trade names and by such special storage requirements as temperature and security. Seventeen of the pharmacies in the sample use a combination of these two methods. Few pharmacies store drugs by generic names, and none of those in the sample stores drugs by chemical names. When other methods of storage are used (by fast or slow moving items, by therapeutic classifications, or by dosage forms, e.g., tablets, liquids), they are almost always used in combination with storage by either trade or generic names. Only three respondents indicated that their hospitals maintain large floor stocks of drugs. Response to the question about storage practices appears in Table 11, on the following page.

Table 11

Storage of Drugs
(N=31)

Practices	Number
Storage of drugs in the Pharmacy is arranged:*	
By trade names	25
By storage requirements (e.g., temperature)	22
By fast or slow moving items	9
By generic names	5
By therapuetic classifications	5
By dosage forms (tablets, liquids, etc.)	2

*Most pharmacies use more than one method.

F. Equipment (Tables 12 and 13)

Six items of equipment that are used in almost all pharmacies, as shown in Table 12*, are the spatula, the ointment slab, the mortar and pestle, the Class A prescription balance, and the pill counting tray. All are used in non-sterile extemporaneous compounding, and all except the pill counting tray are often used also in bulk compounding. Most of the other items shown in the table are used in few pharmacies; only the Class B balance and the pipet are employed in more than one-third of the pharmacies in the sample. Additional items of equipment that were listed in the questionnaire but not reported by any respondents as being used in their pharmacies are shown in Table 13, on the following page.

The kinds of equipment most often used in the preparation of sterile medications are the spatula, the graduate, the Class A balance, and the steam autoclave. Some pharmacies that prepare sterile medications also use the milipore, and a few use a gas autoclave instead of a steam autoclave. None of the equipment shown in the table is used very extensively in the preparation of unit dose medication and other prepackaged items.

One of the large pharmacies in the sample uses a horizontal mechanical conveyer within the pharmacy. Three pharmacies in the sample make use of card punches and/or card readers, either for ordinary stock or for processing charge and credit information, but only one of these employs a computer.

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*The data in Table 12 are based on responses from 30 of the pharmacies. One respondent gave no reply to the question about equipment. Presumably he overlooked the item, since it does not seem likely that any pharmacy would not make use of at least some of the listed equipment.

Table 12

Equipment Used in Pharmacy
(N=30)

Equipment	Number Using	Procedures in which Used			
		Non-Sterile	Bulk Comp.	Sterile Prep.	Unit Dose
Spatula	30	27	15	5	4
Ointment slab	30	28	13	1	2
Mortar and pestle	29	27	16	3	2
Graduate	29	28	15	8	2
Class A balance	28	27	9	6	4
Pill counting tray	28	25	2	1	3
Class B balance	11	6	9	3	1
Pipet	11	8	3	2	1
Steam autoclave	8	1	0	7	1
Milipore	7	3	2	4	1
Gravity filtration apparatus	6	5	3	2	1
Distillation apparatus	5	4	2	2	0
Labeling machinery	5	2	2	2	3
Sieve	4	2	2	1	1
Suppository compressor	3	2	2	0	0
Gas autoclave	3	0	0	3	1
Laminar flow hood	3	0	1	2	2
Packaging machinery	3	1	0	0	3
Analytical balance	2	2	0	0	0
Buret	2	1	2	1	1
Ampule filling machine	2	0	0	2	1
Ointment mill	2	1	2	0	0
Pressure filtration apparatus	2	0	0	2	0
Pill cutter	1	1	0	0	1
Tablet counter	1	1	0	0	0
Capsule filling machine	1	0	1	0	0

Table 13

Equipment not Reported Used
In Any Pharmacy
(N=31)

Lozenge cutter
Tablet mold
Tablet compressor
Tablet coating machine
Centrifuge
Powered blender
Hand operated blender
Capsule manufacturing machine

G. Prepackaging (Tables 14, 15, 16, and 17)

Most pharmacies dispense prepackaged medications. Many large pharmacies do their own prepackaging, but small pharmacies usually purchase all of their prepackaged items (see Table 14). Each of the 13 pharmacies in the sample that prepackage medications also purchases some prepackaged items. At least 10 percent of the drug supply is prepackaged by the pharmacy in *all* the large and medium-sized pharmacies in the sample that prepackage medications, but the proportion exceeds 40 percent only in four of the large pharmacies.

Table 14

Prepackaging
(N=31)

Practice	Total	By Size of Pharmacy		
		L	M	S
Pharmacy purchases prepackaged items	27	12	9	6
Pharmacy has prepackaging system	13	8	4	1
Pharmacy does not prepackage or purchase the items	4	0	1	3
Percent of drug supply prepackaged by Pharmacy:				
1-10%	1	0	0	1
10-20%	4	2	2	0
20-40%	4	2	2	0
40-60%	3	3	0	0
over 60%	1	1	0	0

Prepackaged products usually are labeled, as shown in Table 15, with the dosage strength, the name of the drug, and the dosage form. About half of the pharmacies in the sample that do prepackaging also include expiration date on the labels. Other items listed in the table are placed on the labels by some pharmacies but not by most of them.

Prepackaging records are kept by eight of the 13 pharmacies with prepackaging systems. Table 16 (Page 20) shows that there is somewhat greater consistency among pharmacies in the contents of their records than in the contents of their labels. Only the last three items in the table are not recorded by a majority of the eight pharmacies. The prepackaging records usually include all information placed on the labels of prepackaged products, and also several items of information that may or may not be included on the labels.

Table 15

Information Placed on Labels of Prepackaged Items in Pharmacies that Have Prepackaging Systems (N=13)

Information	Number Reporting
Dosage strength	13
Name of drug	12
Dosage form	11
Expiration date	7
Control number	5
Manufacturer's name	4
Lot number	4
Price	4
Date packaged	3
Container type and size	2
Name or initial of person packaging item	1

Table 16

Information Recorded About Prepackaged Items in Pharmacies That Keep Records (N=8)

Information	Number Reporting
Name of product	8
Dosage strength	8
Dosage form	8
Lot number	7
Control number	7
Number of containers packaged	7
Date packaged	7
Name or initials of person packaging item	7
Manufacturer's name	6
Expiration date	6
Container type and size	4
Name or initials of person checking item	4
Price	3

Few of the pharmacies in the sample use any special equipment in their prepackaging operations, and the only type of equipment used in more than two pharmacies, as shown in Table 17, on the following page, is the pill counting tray.

Table 17

Equipment Used In Prepackaging In Pharmacies That Have Prepackaging Systems (N=13)

Equipment	Number Reporting
Pill counting tray	5
Vials	2
Syringes	2
Monarch printer	2
Vi-count	2
Mercury packaging machine	1
Monarch Tickopress	1
O.I. capper	1
Narcotic discs	1
Administrative sets	1
Filimatic	1

H. Unit dose system (Table 18 and 19)

Unit dose medications are dispensed by 11 of the pharmacies in the sample. Two of the large pharmacies operate exclusively on a unit dose basis and have nurses assigned to the pharmacy for delivery and administration of unit dose medications. None of the other nine pharmacies participates in the administration of the medications.

In most pharmacies less than 25 percent of medications are dispensed on a unit dose basis, and only six of the pharmacies in the sample prepare unit doses. The other five purchase all of their unit dose preparations. The two pharmacies that are shown in Table 18 as purchasing less than 25 percent of their unit dose preparations are the two that operate on a 100 percent unit dose basis.

The kinds of items prepared in the six pharmacies that prepare unit dose medications are capsules, tablets, liquids, and injectables. One pharmacy in the sample includes suppositories among its unit dose preparations. Two prepare only injectables.

Table 18

Unit Dose System in Pharmacies That Dispense Unit Dose Medications (N=11)

Practices	Number Reporting
Unit dose medications are administered by Nursing Department	9
Unit dose medications are administered by nurses assigned to Pharmacy Department	2
Percentage of medications dispensed on a unit dose basis:	
0-25%	6
25-50%	1
50-75%	2
75-99%	0
100%	2
Percentage of unit dose medications purchased commercially:	
0-25%	2
25-50%	0
50-75%	2
75-99%	2
100%	5
Items prepared in unit dose form in 6 pharmacies:	
6 pharmacies:	3
Capsules	3
Tablets	3
Liquids	3
Injectables	3
Suppositories	1
Powders	0
Externals	0

Table 19

Information Placed On Labels Or Entered In Records Of Unit Dose Medications (N=5)

Information Entered	Number Entering in	
	Label	Record
Name of drug	5	4
Strength of dosage	5	4
Dosage form	4	3
Lot number of drug	4	3
Expiration date	4	2
Manufacturer of drug	3	3
Date prepared	2	3
Name or initials of person preparing item	2	3
Name or initials of person checking item	1	2
Price	1	1

I. Pricing and crediting (Tables 20, 21, and 22)

It is the usual practice for orders to be priced in the pharmacy and for credit to be given on unused items unless a hospital operates on a flat fee basis. Twenty-one of the 24 pharmacies in the sample that are in hospitals not on a flat fee basis give credit, as opposed to only three of the seven pharmacies in hospitals that are on a flat fee basis. A few pharmacies destroy all unused medications, but most pharmacies return uncontaminated items to stock, usually without segregating them as returned goods (Table 20, Page 24).

Many pharmacies make use of charge slips, but not always for each medication order. The entries made on charge slips in almost all pharmacies that use them, as shown in Table 21, are the patient's name, room number and hospital number, the name and quantity of the drug, the amount and date of the charge, and the name of the physician. Some pharmacies include the name or initials of the person making the charge, and some include the prescription number on charge slips for outpatient medications. Credit information also may be entered on charge slips in some pharmacies.

Table 20

Pricing and Crediting
(N=31)

Practice	Number Reporting
Hospital is on a flat fee basis	7
Hospital is not on a flat fee basis	24
In hospitals on a flat fee basis:	
Orders priced in Pharmacy; credit given on unused items	3
Orders priced in Pharmacy; credit not given	2
Orders not priced in Pharmacy; credit not given	2
In hospitals not on a flat fee basis:	
Orders priced in Pharmacy; credit given on unused items	20
Orders priced in Pharmacy; credit not given	3
Orders not priced in Pharmacy; credit not given	1
Unused items are returned directly to stock	24
Unused items are returned to stock but segregated as returned goods	3
Unusued items are destroyed	4

Table 21

Use of Charge Slips
(N=31)

Practice	Number Reporting
Pharmacy makes out charge slip for each medication order	15
Charge slips are used, but not made out for each order	7
Pharmacy does not use charge slips	9
Information placed on charge slips, if used:	
Name of patient	22
Patient's room number	22
Name and quantity of drug	22
Amount of charge	22
Date charge was incurred	21
Patient's hospital number	20
Name of physician	20
Name or initials of person making charge	13
Prescription number	8
Date credit was received*	8
Amount of credit*	6
Name or initials of person approving credit*	2

*In some Pharmacies these entries are made on the charge slip as well as on the credit slip.

Pharmacies that give credit on unused items usually make use of credit slips. Table 22 shows the items of information that are entered on credit slips. Most pharmacies enter the patient's name, room number and hospital number, the date and amount of credit, the name and quantity of the drug, and the name of the physician. Information concerning the charge (date, amount, and name or initials of the person making the charge) is included by some pharmacies but not by others.

Table 22

Use of Credit Slips
(N=31)

Practice	Number Reporting
Pharmacy uses credit slips	19
Pharmacy gives credit on unused items but does not use credit slips	4
Pharmacy does not give credit on unused items	8
Information placed on credit slip, if used:	
Name of patient	19
Patient's room number	19
Date credit was received	19
Amount of credit	19
Patient's hospital number	15
Name and quantity of drug	15
Name of physician	14
Date charge was incurred	11
Amount of charge	10
Name or initials of person making charge	9
Name or initials of person approving credit	8
Prescription number	7

J. Extemporaneous compounding of non-sterile medications (Table 23)

Non-sterile medications are compounded in a majority of pharmacies. Only three large pharmacies (including the two that are on a 100% unit dose basis) and three small ones in the sample do no extemporaneous compounding. In most pharmacies the number of extemporaneously compounded non-sterile items prepared per day is not more than five. Only in some of the large pharmacies in the sample does the number of items exceed five per day (Table 23, following page).

Ointments, creams, liquids, and irrigating solutions are the kinds of items most

frequently prepared. Small pharmacies, however, are less likely than large and medium-sized pharmacies to do much compounding of ointments and creams. In relatively few pharmacies does compounding tablets or capsules constitute a large share of the workload.

Table 23

Extemporaneous Compounding of Non-sterile Medications (N=31)

Practice	Total Number	By Size of Pharmacy L	M	S
Pharmacy compounds non-sterile medications	25	9	10	6
Pharmacy does not compound such items	6	3	0	3
Number of items prepared daily:				
1-5	20	4	10	6
5-10	3	3	0	0
10-15	1	1	0	0
15-20	1	1	0	0
Most of non-sterile compounding consists of:*				
Ointments or creams	22	9	10	3
Liquids	22	9	7	6
Irrigating solutions	14	5	6	3
Tablets or capsules	7	3	3	1
Pharmacy uses a Standard Formula Book	7	5	2	0

*In most pharmacies, no single type of preparation accounts for most of the non-sterile compounding.

The use of Standard Formula Books in extemporaneous non-sterile compounding evidently is not widespread. None of the small pharmacies in the sample, and only some of the large and medium-sized pharmacies, use one.

Only four of the pharmacies in the sample keep any records of their non-sterile compounding in addition to the usual dispensing or patient medication records, and only two of these record any items of information that are not ordinarily included on the label (i.e., manufacturer and lot numbers of ingredients, and price of the medication).

K. Preparation of sterile medications (Tables 24 and 25)

Sterile medications are prepared in most large and medium-sized pharmacies, but in relatively few small pharmacies. While most pharmacies check their sterile products for clarity, checking for both clarity and vacuum tends to be the most common practice only in large pharmacies. A number of pharmacies also send their sterile products to a laboratory for checking, but many do not (Table 24).

Table 24

Preparation of Sterile Medications
(N=31)

Practice	Number Reporting	By Size of Pharmacy		
		L	M	S
Pharmacy prepares sterile medications	19	10	7	2
Pharmacy does not prepare sterile medications	12	2	3	7
Pharmacy checks sterile products for clarity & vacuum	9	6	2	1
Pharmacy checks sterile products only for clarity	6	1	4	1
Pharmacy sends samples to laboratory for checking	7	4	2	1
Pharmacy does not check products or send them to laboratory	3	3	0	0
Types of sterile medications prepared:*				
Irrigation solutions	13	6	6	1
IV with additives	9	5	2	2
Opthalmic	6	4	1	1
Injections	4	2	2	0
IV	3	1	2	0
Type representing largest percentage of workload:				
Irrigation solutions	11	4	6	1
IV with additives	6	4	1	1
Opthalmic	1	1	0	0
Injections	1	1	0	0
IV	0	0	0	0

*Most pharmacies prepare more than one type of sterile medication.

Table 25

Information Placed on Labels and Entered in Records of Sterile Preparations (N=8)

Information	Entered in Label	Entered in Record
Name and quantity of product	8	3
Expiration date	8	2
Names and quantities of ingredients	7	3
Dosage strength	7	3
Dosage form	5	3
Route of administration	4	2
Date prepared	4	3
Lot numbers of ingredients	3	2
Name or initials of person preparing item	3	2
Manufacturer of ingredients	1	2
Name or initials of person checking product	1	2
Price	1	2
For IV preparations:		
Names and quantities of additives	3	1
IV stability	2	1
IV number	1	1

Three of the pharmacies in the sample keep records of the preparation of sterile medications in addition to the normal dispensing or patient medication records. Respondents whose pharmacies keep such records were asked in the questionnaire to indicate what information they recorded and what information they placed on the labels of sterile medications. Since five respondents provided information about their labeling practices even though they did not keep records, the data on labeling practices that are shown in Table 25 (above) are based on responses from eight pharmacies. The name and quantity of the product, the expiration date, the names and quantities of the ingredients, and the dosage strength normally are included on the labels of sterile preparations; the manufacturer of the ingredients, the name or initials of the person checking the product, and the price of the product usually are not included. Practices vary with respect to other items listed in the table. The items of information recorded about sterile products are also shown in Table 25, but the number of respondents is too small to provide any trustworthy indication of which items may be the ones most often included.

L. Bulk compounding (Table 26)

Whether or not bulk compounding is done in a pharmacy has some relation to the size of the pharmacy. About half of the large and medium-sized pharmacies in the sample prepare bulk compounds, but only two of the nine small pharmacies do so. Bulk compounding does not represent more than 10 percent of the total workload in any of the pharmacies in the sample (Table 26, below).

Four of the pharmacies in the sample keep records on the preparation of bulk compounds. Respondents whose pharmacies keep such records were asked in the questionnaire to indicate what information they recorded and what information they placed on the labels of bulk preparations. Since six respondents provided information about their labeling practices even though they did not keep records, the data on labeling practices that are shown in Table 26 are based on responses from 10 pharmacies. The name and quantity of the compound is always placed on labels, but practices with respect to the inclusion of other items are less consistent. The name or initials of the person checking the compound, the manufacturer of the raw materials, and the lot numbers of the raw materials usually are not included either on labels or in records. The number of respondents is too small to provide a very good indication of what is normally included in records of bulk compounding, but it appears as though individual pharmacies probably record the same information that they include on the labels.

Only one of the large pharmacies in the sample followed the practice of storing completed bulk compounds in quarantine until checked by a laboratory.

Table 26

Bulk Compounding
(N=31)

Practice	No. Reporting	By Size of Pharmacy		
		L	M	S
Pharmacy manufactures bulk compounds	12	5	5	2
Pharmacy does not manufacture bulk compounds	19	7	5	7
Information placed on labels and in records of bulk compounds:		Label	Record	
Name and quantity of compound		10	4	
Names and quantities of raw materials		7	3	
Expiration date		6	2	
Control number		5	3	
Name or initials of compounder		5	2	
Name or initials of person checking compound		1	1	
Manufacturer of raw materials		1	1	
Lot numbers of raw materials		1	1	

M. Transport of medications to floors (Table 27)

The most commonly used methods of transporting medications to floors are delivery by pharmacy personnel and pickup by nursing personnel. These two methods of transport are those most frequently used in small pharmacies, and in many small pharmacies they are the only ones used. Most large and medium-sized pharmacies make use of several different means of transport, and there is considerable variation with respect to which method is the one most frequently used (Table 27, below).

Pneumatic tubes are used in a number of large and medium-sized pharmacies, but they are not the most frequently used method of transport in very many of these pharmacies. Carts or trays also are seldom the most frequently used method. Dumbwaiters or conveyers, on the other hand, while not used in very many pharmacies, are likely to be the method of transport most frequently used in the pharmacies that do employ them.

When medications have been delivered to the floor, the pharmacy may sometimes be called on for advice about their administration, but otherwise pharmacy personnel do not participate in or help to organize the administration of medications to patients. The only exceptions to this in the sample are the two pharmacies that operate on a 100 percent unit dose basis (See Table 18) where the medications are administered by nurses assigned to the pharmacy and working under the direction of the pharmacist.

Table 27

Transport of Medications To Floors
(N=31)

Practice	Number Reporting	Size of Pharmacy		
		L	M	S
Forms of transport used:*				
Delivery by pharmacy personnel	24	10	7	7
Pickup by nursing personnel	16	5	6	5
Messenger	12	6	4	2
Pneumatic tube	10	6	4	0
Cart or tray	9	5	2	2
Dumbwaiter or conveyer	6	3	3	0
Form of transport most frequently used:				
Delivery by pharmacy personnel	10	3	2	5
Pickup by nursing personnel	6	2	1	3
Messenger	6	3	2	1
Pneumatic tube	3	2	1	0
Cart or tray	1	0	1	0
Dumbwaiter or conveyer	5	2	3	0

*Most pharmacies use more than one form of transport.

N. Medication delivery records (Table 28)

Very few pharmacies keep records of the delivery of medications to floors. Only five of those in the sample keep records either in the pharmacy or both in the pharmacy and on the floor. The other 26 do not keep any medication delivery records.

The items of information recorded in delivery records by those pharmacies that keep them are shown in Table 28, but the number of respondents is so small that little can be inferred from these data beyond the fact that each of the items listed in the table is recorded in at least some pharmacies.

Table 28

Medication Delivery Records
(N=31)

Practice	Number Reporting
Medication delivery records are kept in Pharmacy	2
Medication delivery records are kept in Pharmacy and on floors	3
No medication delivery records are kept	26
Information placed on delivery records, if kept:	
Name of patient	4
Date	4
Patient's room number	3
Name and quantity of medication	3
Patient's hospital number	2
Physician's name	2
Name or initials of person accepting delivery*	2

*In one pharmacy, this item alone constitutes the delivery record.

O. Receiving procedures (Tables 29 and 30)

Receiving practices in pharmacies are very uniform. Almost without exception, all the pharmacies in the sample followed the procedures outlined in Table 29 (Page 32). The details of the procedure followed in checking invoices, as shown in Table 30, also are quite uniform. Only two invoice items, the shipping charges and the invoice code, are not usually checked by a large majority of the pharmacies in the sample.

Table 29

Receiving Procedures
(N=31)

Procedures	Number Reporting
Hospital has a special area for receiving goods	30
This area serves also to receive pharmacy goods	27
The bill of lading is checked against number of cartons before it is signed	31
When the order is checked in the Pharmacy, the invoice is compared with merchandise for pricing	31
Pharmacy notifies the company if excess items are sent	30
Person who has checked items signs the invoice and records the date	31
The invoice is forwarded to the Business Office for payment	30
Items omitted from shipment are ordered short through use of a Want Book	29
Items omitted from shipment are ordered direct	2

Table 30

Checking of Invoices
(N=31)

Practice	Number Reporting
Pharmacy checks invoices for:	
Number of units or cartons	30
Description of items	29
Price per unit	29
Number of items per unit or carton	25
Condition of items	25
Name of sender	25
Total price	24
Shipping charges	16
Invoice code	11

P. Procedures followed when discrepencies or damaged items are discovered (Table 31)

When a discrepancy is found between the bill of lading and the merchandise received the usual procedure is for the pharmacist to contact either the supplier or his local representative and ask him to make the appropriate adjustment of the discrepancy. If the

supplier has a local representative, usually the pharmacist notifies him by phone; otherwise a letter is sent to the supplier. If the matter is not urgent and if the salesman makes frequent calls at the pharmacy, the pharmacist may wait until his next visit before bringing the matter to his attention (Table 31).

The same procedure is followed in dealing with damaged items. Either the supplier or the salesman may be contacted. Thirteen of the respondents specifically mentioned that the damaged item is held for inspection by the salesman or instructions from the supplier as to its disposition. Many of the others probably follow the same practice, but did not give this detail in their responses to the questionnaire.

It appears that procedures for dealing with discrepancies and damaged items generally are not formalized. The pharmacist simply notifies the supplier or salesman of the nature of the difficulty and leaves its resolution to him. Only two of the respondents indicated that they use a special form for reporting either discrepancies or damaged items. Relatively few pharmacies follow any alternative procedure, such as contacting the carrier instead of the supplier or salesman.

Table 31

Procedures Followed When Discrepancies or Damaged Items are Discovered (N=31)

Procedure	Number Reporting
When a discrepancy is found between the bill of lading and the merchandise received:	
Pharmacy notifies supplier or his salesman	25
Pharmacy notifies the carrier	3
Pharmacy notifies Accounting Department	2
Pharmacy notifies Purchasing Agent	1
When a damaged item is found:	
Pharmacy holds item for inspection by salesman or instructions from supplier	13
Pharmacy notifies supplier or his salesman	12
Pharmacy returns item to supplier	4
Pharmacy notifies the carrier	2

Q. Inventory control (Table 32)

Inventory control systems exist in most large pharmacies, but in very few medium-sized and small pharmacies. Nine large pharmacies, one medium-sized pharmacy, and one small pharmacy in the sample employ inventory control cards. One large pharmacy has a computerized inventory control system. In the pharmacies where they are used, inventory control cards usually are regularly updated.

Almost all pharmacies take formal inventories, and in most cases the inventory is a total one rather than only a storeroom and overstock inventory. Floating or continual inventories, however, are maintained only in a minority of pharmacies.

Table 32

Inventory Control
(N=31)

Procedure	Total Reporting	By Size of Pharmacy		
		L	M	S
Pharmacy uses inventory control cards	11	9	1	1
Pharmacy uses computer for inventory control	1	1	0	0
Pharmacy does not have inventory control system	19	2	9	8
Inventory control cards are updated after items are checked in and shortages noted	9	7	1	1
Formal inventory is taken in Pharmacy	29	11	9	9
Inventory is a total inventory	26	10	8	8
Inventory is a storeroom and overstock inventory	3	1	1	1
Pharmacy uses stock record forms for a floating or continual inventory	7	3	2	2

R. Short orders and Want Books (Table 33)

The criteria used by most pharmacies in determining whether to order items direct or short are urgency of need, quantity needed, and the price difference between direct and short orders. Many pharmacies also take into consideration the conditions of whatever contracts may exist with suppliers. Rarely-used items are ordered short if evaluation in terms of these criteria provides sufficient reason.

Almost all pharmacies use a Want Book in which names of items to be ordered are accumulated. The item, the package size, and the quantity needed are recorded in the Want

Book. Urgency of need and the name of the supplier usually are not included.

Treatment of narcotics shortages varies. A majority of pharmacies note them in their Want Books, but a substantial number identify narcotics shortages or impending shortages by means of periodic inventories and place orders as needed to maintain the stocks at the desired levels.

Most pharmacies have a storeroom for extra quantities of stock, and shortages in this storeroom are usually, but not in all cases, treated in the same way as shortages in the pharmacy.

Table 33

Short Orders and Want Books
(N=31)

Practice	Number Reporting
Criteria used for ordering short:	
Urgency of need	31
Quantity needed	26
Price difference between direct and short orders	25
Conditions of contract with supplier	18
Rarely-used items may be ordered short	28
Rarely-used items are not ordered short	3
Pharmacy uses a Want Book	29
Information recorded in Want Book:	
Name of item	29
Package size	28
Quantity needed	24
Urgency of need	5
Name of supplier	3
Narcotics shortages are noted in Want Book	18
Narcotics supplies are inventoried periodically and orders are placed to maintain stock	12
Narcotics shortages are noted in a Narcotics Want Book	1
Pharmacy has storeroom for extra quantities of stock	22
Shortages in their storeroom are treated in the same way as shortages in the Pharmacy	16

S. Purchase orders (Table 34)

In most pharmacies a purchase order is needed whenever an order is sent directly to a supplier. In other pharmacies purchase orders may be used but are not required for every order. The principal methods used for placing orders are to send a standard purchase order directly to the supplier, to phone an order to the supplier and receive a copy of the purchase order from him by mail, and to place an order with a salesman and receive a copy from him. Twenty-four of the pharmacies in the sample employ all three of these methods, and only two do not make use of at least one of them. Relatively few pharmacies use any alternative methods of placing orders.

The usual practice in pharmacies is for current purchase orders to be kept in a separate file pending the receipt of merchandise. A repeating purchase order system for reorders is used only in two of the large pharmacies in the sample.

Table 34

Purchase Orders
(N=31)

Procedure	Number Reporting
Purchase order is necessary for all orders direct to suppliers	24
Purchase order is not necessary for all orders direct to suppliers	7
Methods used for placing orders:*	
Send standard purchase order directly to supplier	28
Phone order to supplier and receive copy by mail	27
Place order with salesman and receive copy from him	26
Forward requisition to Purchasing Department	3
Send order to a central storehouse shared with other facilities	3
Filing of current (pending) purchase orders:	
Pharmacy has separate file for current orders	25
Pharmacy "holds" current orders separately	2
Pharmacy files current orders with others	2
Pharmacy does not use purchase orders	2

*Most pharmacies use more than one method.

IV. DISCUSSION

The Pharmacy Technician Task List developed with the assistance of the National Technical Advisory Committee for the Pharmacy Technician was organized under six major headings:

I. Dispensing Pharmaceuticals
II. Manufacturing/Bulk Compounding
III. Prepackaging
IV. Sterile Solution Manufacturing
V. Purchase, Inventory, Receive, and Store
VI. Administration of Pharmaceuticals

Two of these areas rather obviously deserve priority over the others in the development of a curriculum. Dispensing and purchasing activities are carried out in all pharmacies. It is reasonable, therefore, to consider them the primary subjects to be taught in a Pharmacy Technician curriculum. The survey results suggest that the next priority should be given to sterile solution manufacturing. Most of the large and medium-sized pharmacies in the sample prepare sterile medications. Lower priorities could be given to bulk compounding and prepackaging, which are not done in most of the pharmacies in the survey sample. They are, however, done in many of the larger pharmacies that typically employ non-professional workers, and therefore are appropriate for inclusion in a Pharmacy Technician curriculum. The administration of pharmaceuticals, if included at all, is the subject that should be given the lowest priority in the development of a curriculum. The survey results indicate that pharmacy workers ordinarily are not expected to participate in the administration of medications.

The Pharmacy Technician Task List, supplemented by the addition of procedural elements suggested by the results in the survey, is shown in Appendix D. Additions and minor modifications in the list are marked with asterisks. All tasks present in the original list are included. Parentheses have been placed around the tasks that could be omitted from a curriculum because the survey shows that they usually are not performed in health care facility pharmacies.

Dispensing Pharmaceuticals

In the area of dispensing, the usual methods by which orders are received in the pharmacy are pick-up by pharmacy personnel and delivery by messengers or ward personnel (see Table 3). Use of the pneumatic tube should also be taught to the Pharmacy Technician, however, since it is the method frequently employed in large pharmacies. Medication orders are most often received as copies transcribed by nurses, but the Technician also should be familiar with NCR duplications, which are used in most large pharmacies (see Table 4). Telephone orders (see Tables 4 and 5) are not often received, and in any case are the responsibility of the Pharmacist rather than the Technician.

Dispensing records, when kept, usually are kept in the pharmacy. Most pharmacies, however, do not keep special dispensing records; the more common practice is for the file of medication orders to serve as a dispensing record (see Table 6). There is no one method of filing orders that can be taught as the standard procedure. The Technician may be required to file them by patient's name, by prescription number, or by date (see Table 6). When other records are kept, they are usually in the form of a card file of patients and medications. Table 7 shows the information that is recorded in the dispensing record.

No other method than typing is used in the preparation of medication labels with sufficient frequency to indicate a need for its being taught in a Pharmacy Technician curriculum (see Table 8). The use of clear tape for attaching labels to packages may be taught, but the Technician should know that this procedure is not used in all pharmacies (see Table 8). The items that the Technician should be taught to include on inpatient and outpatient labels are shown in Tables 9 and 11. The most common practice is to include the name of the drug unless the prescriber orders it not included, but the Technician should be aware that the opposite practice is followed in some pharmacies.

The principal types of equipment that the Technician should be taught to use are the spatula, the ointment slab, the mortar and pestle, the graduate, the Class A balance, the pill counting tray, the Class B balance, and the pipet (see Table 12). Many other types of equipment are used in pharmaceutical work, but each type is used in so few pharmacies that training in its use might better be carried out on the job. Training in the use of the steam autoclave, and perhaps the milipore, might be appropriate, however, in conjunction with training in the preparation of sterile medications.

All of the methods of transport of medications shown in Table 27 may appropriately

be taught in a Pharmacy Technician curriculum. Even though pneumatic tubes, carts, and dumbwaiters may be less widely used than other methods, they are used in a number of the larger pharmacies where Technicians are most likely to be employed. The maintenance of delivery records is a task that can be omitted from the curriculum (see Table 28).

The processing of medications brought to the hospital by patients is a task not originally included in the Pharmacy Technician Task List, but it might be added on the basis of the survey results. The procedures may be taught as outlined in Appendix D (see Table 2).

Manufacturing/Bulk Compounding

The teaching of bulk compounding does not require training of the student in any kinds of equipment other than those used in dose preparation (see Table 12). The procedure for preparing labels for bulk compounds is shown in Table 26. While information may be recorded on work sheets, few pharmacies keep any further permanent records of their bulk compounding (see Table 26). The storing of completed products under quarantine is a task that may be omitted from the list; hardly any pharmacies follow this practice.

Prepackaging

Most large pharmacies do prepackaging, and in a number of them a fairly high proportion of the total drug supply is prepackaged (see Table 14). Procedures for preparation of labels and records are indicated in Tables 15 and 16. Few pharmacies use labeling machinery or any other special equipment for prepackaging (see Table 17). Setting up machines for making labels, therefore, could be omitted from the task list. Training in the preparation of unit dose medications probably does not need to be included in a Pharmacy Technician curriculum. Most pharmacies do not dispense unit dose medications, and in pharmacies that do dispense them the supply often is purchased rather than prepared by the pharmacy (see Table 18).

Sterile Solution Manufacturing

In the teaching of sterile solution manufacturing, emphasis should be placed on the preparation of irrigation solutions and IV solutions with additives (see Table 24). Training in the use of the steam autoclave probably would be appropriate when sterile solution manufacturing is taught, but other kinds of equipment such as the gas autoclave and the

laminar flow hood are less generally used (see Table 12) and might better be left to on-the-job training in those pharmacies that employ them. The procedure for preparing labels for sterile medications is indicated in Table 25.

Purchase, Inventory, Receive, and Store

In the area of purchasing and inventory control, Technicians should be taught the use of inventory control cards, since most large pharmacies have this type of inventory control system (see Table 32). Purchase orders are used in nearly all pharmacies, and current orders usually are held in a separate suspense file (see Table 34). Procedures used for placing orders are shown in Table 34, but placing orders probably is the responsibility of the Pharmacist rather than the Technician. Procedures relating to the use of Want Books that may be taught to Technicians are shown in Table 33.

Receiving procedures are outlined in Table 29, and the items usually checked on invoices are shown in Table 30. Probably the responsibility of the Technician in dealing with discrepancies and damaged items is limited to notifying the Pharmacist of the nature of the problem, and the procedures shown in Table 31 would be carried out by the Pharmacist.

In insuring proper storage of drugs, such considerations as security, temperature, and flammability requirements are the primary determinants of storage locations. Storage of drugs by trade names can be taught as the usual method of arranging storage secondary to those requirements (see Table 11).

Administration of Pharmaceuticals

The last area covered in the task list, the administration of pharmaceuticals, does not seem to be necessary in a Pharmacy Technician curriculum. The survey results indicate that pharmacies do not participate in the administration of medications except in special cases where the Pharmacy Department is organized to include nurses for this purpose. There is no evidence to suggest that non-professional pharmacy workers would ever be expected to assist in administration.

Accounting and Finance

During development of the task list, the National Technical Advisory Committee decided that accounting and finance functions should be eliminated from the inventory as being more appropriate to other personnel than the Pharmacy Technician. A few items

relating to finance, however, were included in the survey questionnaire. Procedures dealing with pricing of orders and giving credit are shown in Tables 20 to 22, although inclusion of these subjects in the Pharmacy Technician curriculum is not intended at present.

V. CONCLUSIONS

The two subjects that should be given first priority in the development of a Pharmacy Technician curriculum are dispensing and purchasing (purchase, inventory, receive, and store). Bulk compounding, prepackaging, and sterile solution manufacturing may be assigned a lower order of priority but nevertheless deserve a place in the curriculum because they are activities likely to be performed in large health care facility pharmacies that employ non-professional workers. Training in the administration of pharmaceuticals does not seem to be necessary for Pharmacy Technicians; it is an activity in which non-professional pharmacy workers do not ordinarily participate.

The results of the present survey can be used as a supplement to the task list previously developed as a basis for construction of a Pharmacy Technician curriculum. A number of specific procedures are identifiable as being the usual ones followed in health care facility pharmacies for the performance of certain tasks and therefore as being appropriate for incorporation into the curriculum. A few of the tasks originally included in the list are ones that are not performed in health care facility pharmacies and need not be included in a Pharmacy Technician curriculum.

APPENDICES

APPENDIX A

Roster

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APPENDIX B-1

THE SURVEY QUESTIONNAIRE

BACKGROUND INFORMATION SHEET

Please complete this information sheet and return it with the survey form. This is a confidential document, and the information will be used for research purposes only.

1. Facility_____

2. Your position title_____

3. Licenses, certificates, or registrations held

   (specify)_____

4. Highest academic degree received_____

5. Number of professional personnel (including yourself) employed in

   your pharmacy_____

6. Number of non-professional personnel (technicians, clerks, etc.)

   employed in your pharmacy_____

DO NOT USE THIS SPACE

PHARMACY QUESTIONNAIRE

I. Patient's Outside Medications

1. When a patient arrives in your hospital and brings medications with him, is he allowed to use these medications within the hospital?

YES NO (Circle your answer)

1.1 If NO, does the Pharmacy receive and store these medications?

YES NO (Circle your answer)

1.2 If the answer to 1.1 is YES, do you use a standard claim check to identify them?

YES NO (Circle your answer)

2. If choices in questions 1 to 1.2 do not describe your procedure, please explain.

II. Receipt of Medication Orders

1. How are your orders received in the Pharmacy? (Circle one or more of letters a to f below)

a. Messenger

b. Pneumatic tube system

c. Teletype

d. Dumb waiter

e. Pickup by pharmacy personnel

f. Other (please describe)

DO NOT USE THIS SPACE

If you circled more than one letter, which of them represents the way most of your orders are received?

_____ (Answer by writing the letter here) _____

2. In what form are your orders received?
(Circle one or more of letters a to f below)

_____ a. Physician's written order

_____ b. An NCR duplication

_____ c. Phone order from physician

_____ d. Phone order from nursing personnel

_____ e. Transcribed copy from Nurse

_____ f. Teletype or computer

If you circled more than one letter, which of them represents the way in which most orders are received?

(Answer by writing the letter here) _____

3. What information do you usually require on a telephone order?
(Circle letters below to indicate your answers)

_____ a. Patient's name

_____ b. Patient's hospital number

_____ c. Patient's room number

_____ d. Physician's name

_____ e. Name and quantity of drug

_____ f. Route of administration of drug

_____ g. Strength of dosage and frequency of administration

_____ h. Expiration or discontinuance date

_____ i. Other (please describe)

DO NOT USE THIS SPACE

4. Do you check dosages on medication orders against listed standard dosages?

_____ YES NO (Circle your answer)

5. Do you keep large floor stocks in your hospital?

_____ YES NO (Circle your answer)

III. Dispensing Record-Keeping

1. Are copies of medication orders kept by the Pharmacy?

_____ YES NO (Circle your answer)

1.1 If YES, how are they filed?
(Circle one or more of letters a to d below)

_____ a. By patient's name, alphabetically

_____ b. By patient's hospital number

_____ c. By prescription or order number

_____ d. Other (please describe)

2. Are other dispensing or patient medication records kept?

_____ YES NO (Circle your answer)

If YES, continue with questions 2.1 to 2.3

If NO, go on to section IV.

2.1 In what form are these records kept?
(Circle one or more of letters a to d below)

_____ a. Notebook record of patient and medication

_____ b. Card file of patient and medication

_____ c. Floor records utilized as Pharmacy dispensing records

_____ d. Other (please describe)

DO NOT USE THIS SPACE

2.2 What information is recorded?
(Circle letters below to indicate your answers)

a. Patient's name

b. Patient's hospital number

c. Patient's room number

d. Physician's name

e. Prescription number

f. Date

g. Name or initials of person filling order

h. Name or initials of person checking order

i. Name and quantity of drug

j. Route of administration of drug

k. Strength of dosage and frequency of administration

l. Expiration or discontinuance date

m. Number of refills permitted

n. Charge for medication

o. Type of order (stat, prn, etc.)

p. Other (please describe)

DO NOT USE THIS SPACE

2.3 Where are dispensing records kept?
(Circle one or more of letters a to d below)

a. In Pharmacy

b. On ward

c. Areas on ward designated as pharmacy

d. Other (please describe)

IV. Preparation of Order

Please answer the following questions as though label preparation is the first step in preparation of order, whether or not this is your practice.

1. What information do you place on your medication labels?
(Answer by placing X marks in the spaces opposite items listed below)

	Regular Inpatient	Take-Home Medications
Patient's name	____	____
Patient's hospital number	____	____
Patient's room number	____	____
Physician's name	____	____
Prescription number	____	____
Date	____	____
Name or initials of person filling order	____	____
Name or initials of person checking order	____	____
Name and quantity of drug	____	____
Route of administration of drug	____	____
Strength of dosage	____	____

DO NOT USE THIS SPACE

	Regular Inpatient	Take-Home Medications
Frequency of administration	____	____
Expiration or discontinuance date	____	____
Number of refills permitted	____	____
Type of order (stat, prn, etc.)	____	____
Other (please describe)	____	____

2. Is the name of the drug included on labels for take-home medications? (Circle a or b below)

   a. Only when the prescriber orders it included

   b. Unless the prescriber orders it not included

   If choices a or b do not describe your policy, please explain.

3. How are labels prepared?
   (Answer by circling one or more of letters a to e below)

   a. Typed or handwritten

   b. Rubber stamps

   c. Computer-controlled printing

   d. Manually-operated machinery

   e. Other (please explain)

DO NOT USE THIS SPACE

4. Do you apply any preservative treatment to labels?

YES NO (Circle your answer)

4.1 If answer is YES, please describe the treatment used.

5. How is storage of drugs arranged in your Pharmacy?
(Circle one or more of letters a to g below)

a. By generic name

b. By chemical name

c. By manufacturer's (trade or brand) name

d. By therapeutic classification

e. By fast or slow-moving items

f. By storage requirements such as security, temperature, etc.

g. Other (please describe)

6. Do you use a horizontal mechanical conveyor within the Pharmacy?

YES NO (Circle your answer)

DO NOT USE THIS SPACE

V. Equipment

1. Do you use any computer or automated data processing equipment in your Pharmacy?

_____ YES NO (Circle your answer)

1.1 If YES, what kinds of equipment?
(Circle one or more letters a to d below)

_____ a. Card punch

_____ b. Card reader

_____ c. Teletype printer

_____ d. Other (please specify)

1.2 What is the equipment used for?
(Circle one or more of letters a to e below)

_____ a. Receiving orders

_____ b. Processing charges or credits

_____ c. Ordering stock replacements

_____ d. Printing labels

_____ e. Other (please specify)

DO NOT USE THIS SPACE

2. For which of the following procedures do you use the equipment listed below?

   Non-sterile extemporaneous compounding

   Sterile preparations, including IV additives (if done)

   Bulk compounding (if done)

   Unit dose and other prepackaged preparations (if done)

(Answer by placing X marks in the appropriate columns for each piece of equipment; mark the "None" column if the equipment is not used.)

	None	Non-Sterile	Sterile Prep.	Bulk Comp.	Unit Dose
Class A prescription balance	___	___	___	___	___
Class B balance	___	___	___	___	___
Analytic balance	___	___	___	___	___
Mortar and pestle	___	___	___	___	___
Spatula	___	___	___	___	___
Seive	___	___	___	___	___
Graduate	___	___	___	___	___
Pipette	___	___	___	___	___
Burette	___	___	___	___	___
Pill cutter	___	___	___	___	___
Lozenge cutter	___	___	___	___	___
Tablet mold	___	___	___	___	___
Tablet compressor	___	___	___	___	___
Tablet coating machine	___	___	___	___	___
Capsule filling machine	___	___	___	___	___
Capsule manufacturing machine	___	___	___	___	___
Ampule filling machine	___	___	___	___	___

DO NOT USE THIS SPACE

	None	Non-Sterile	Sterile Prep.	Bulk Comp.	Unit Dose
Ointment slab	___	___	___	___	___
Ointment mill	___	___	___	___	___
Suppository compressor	___	___	___	___	___
Pill counting tray	___	___	___	___	___
Centrifuge	___	___	___	___	___
Powered blender	___	___	___	___	___
Hand operated blender	___	___	___	___	___
Gravity filtration apparatus	___	___	___	___	___
Pressure filtration apparatus	___	___	___	___	___
Distillation apparatus	___	___	___	___	___
Steam autoclave	___	___	___	___	___
Gas autoclave	___	___	___	___	___
Laminar flow hood	___	___	___	___	___
Milipore	___	___	___	___	___
Packaging machinery	___	___	___	___	___
Labeling machinery	___	___	___	___	___
Other (please describe)	___	___	___	___	___

VI. Prepackaging

1. Do you purchase items that are already prepackaged?

YES NO (Circle your answer)

DO NOT USE THIS SPACE

2. Does a prepackaging system exist in your Pharmacy?

_____ YES NO (Circle your answer)

If YES, continue with questions 3 to 5.

If NO, go on to section VII.

3. Approximately what percentage of your present drug supply is prepackaged by your Pharmacy?
(Circle one of letters a to e below)

_____ a. 0-10%

_____ b. 10-20%

_____ c. 20-40%

_____ d. 40-60%

_____ e. Other (please specify

4. What information do you record and what do you put on labels for prepackaged items?
(Answer by placing X in the spaces opposite items listed below)

	Recorded	Label
_____ Name and quantity of product	_____	_____
_____ Dosage form	_____	_____
_____ Strength of dosage	_____	_____
_____ Manufacturer's name	_____	_____
_____ Lot number	_____	_____
_____ Container type and size	_____	_____
_____ Number of containers packaged	_____	_____
_____ Price	_____	_____

DO NOT USE THIS SPACE

	Recorded	Label
Control number	____	____
Date packaged	____	____
Expiration date	____	____
Name or initials of person packaging item	____	____
Name or initials of person checking item	____	____
Other (please describe)	____	____

5. Please list the equipment you use in prepackaging:

_____ _____ _____

_____ _____ _____

_____ _____ _____

VII. Unit Dose

1. Does a unit dose system exist in your Pharmacy?

YES NO (Circle your answer)

If YES, continue with questions 2 to 6.

If NO, go to section VIII.

2. Which departments administer unit dose medications to patients? (Circle one or both of letters a to b below)

a. Pharmacy

b. Nursing

DO NOT USE THIS SPACE

3. What percentage of your medications is dispensed on a unit dose basis?
(Circle one of letters a to e below)

_____ a. 0-25%

_____ b. 25-50%

_____ c. 50-75%

_____ d. 75-99%

_____ e. 100%

4. What percentage of your unit dose medications is purchased commercially (ready-to-use)?
(Circle one of letters a to e below)

_____ a. 0-25%

_____ b. 25-50%

_____ c. 50-75%

_____ d. 75-99%

_____ e. 100%

5. If you prepackage your own unit does medications, please indicate what items you prepackage.
(Circle one or more of letters a to e below)

_____ a. Capsules

_____ b. Tablets

_____ c. Powders

_____ d. Liquids

_____ e. Externals

_____ f. Other (please describe)

DO NOT USE THIS SPACE

6. If your Pharmacy prepares unit dose medications, what information do you record about them, and what do you put on the labels? (Answer by placing X marks in the spaces opposite items listed below)

	Recorded	Label
Name of drug	____	____
Dosage form	____	____
Strength of dosage	____	____
Route of administration	____	____
Manufacturer of drug	____	____
Lot number of drug	____	____
Date prepared	____	____
Expiration date	____	____
Price	____	____
Name or initials of person preparing item	____	____
Name or initials of person checking item	____	____
Other (please describe)		

VIII. Pricing and Crediting

1. Are orders priced in the Pharmacy?

YES NO (Circle your answer)

2. Is your hospital on a flat fee basis?

YES NO (Circle your answer)

3. Is credit given on unused itmes returned to Pharmacy?

YES NO (Circle your answer)

DO NOT USE THIS SPACE

4. Are unused packages returned to stock?

YES NO (Circle your answer)

4.1 If YES, are they kept segregated as returned goods?

YES NO (Circle your answer)

4.2 If unused packages are not returned to stock, what disposition is made of them? (please describe)

5. Does the Pharmacy make out a charge slip for each medication order?

YES NO (Circle your answer)

6. If charge and/or credit slips are used, what information is entered on them?
(Answer by placing X marks in the spaces opposite items listed below)

	Charge	Credit
Patient's name	____	____
Patient's hospital number	____	____
Patient's room number	____	____
Physician's name	____	____
Prescription or order number	____	____
Name and quantity of drug	____	____
Date charge was incurred	____	____
Amount of charge	____	____
Name or initials of person making charge	____	____
Date credit was received	____	____
Amount of credit	____	____

DO NOT USE THIS SPACE

	Charge	Credit
Name or ititials of person approving credit	____	____
Other (please describe)		

IX. Dose Preparation, Extemporaneously Compounded Non-sterile Medication

1. Do you prepare such items?

YES NO (Circle your answer)

If YES, continue with questions 1.1 to 4.1

If NO, go on to section X.

1.1 How many such items do you prepare daily? (Circle one of letters a to e below)

a. 0-5

b. 5-10

c. 10-15

d. 15-20

e. Other (please describe)

2. Does your hospital have a Standard Formula Book?

YES NO (Circle your answer)

DO NOT USE THIS SPACE

3. What does most of your non-sterile compounding consist of? (Circle one or more of letters a to e below)

   a. Ointments or creams

   b. Liquids

   c. Non-sterile irrigating solutions

   d. Capsules or tablets

   e. Other (please describe)

4. Do you record information about the compounding in addition to what is recorded in dispensing or patient medication records?

   YES NO (Circle your answer)

   4.1 If YES, what information do you record about the compounds, and what do you put on the labels?
   (Answer by placing X marks in the spaces opposite items listed below)

	Recorded	Label
Name and quantity of drug		
Names and quantities of ingredients		
Manufacturer of ingredients		
Lot number of ingredients		
Dosage form		
Strength of dosage		
Route of administration		
Date prepared		
Expiration date		
Price		

DO NOT USE THIS SPACE

	Recorded	Label
Name or initials of person compounding	____	____
Name or initials of person checking compounding	____	____
Other (please describe)		

X. Dose Preparation - Sterile

1. Do you prepare sterile medications?

YES NO (Circle your answer)

If YES, continue with questions 1.1 to 6.

If NO, go on to section XI.

1.1 Approximately what percentage of your prescription workload is involved in such preparation?
(Circle one of letters a to e below)

a. 0-20%

b. 20-40%

c. 40-60%

d. 60-80%

e. Other (please specify)

DO NOT USE THIS SPACE

2. What type or types of sterile medication do you prepare? (Circle one or more of letters a to e below)

a. IV

b. Irrigation solution

c. IV with additives

d. Ophthalmic

e. Other (please describe)

If you circled more than one letter, which of them represents the largest part of your work?

(Answer by writing the letter here) _____

3. Do you record information about sterile products in addition to what is recorded in dispensing or patient medication records?

YES NO (Circle your answer)

3.1 If YES, what information do you record, and what do you put on the labels?
(Answer by placing X marks in the spaces opposite items listed below)

	Recorded	Label
Name and quantity of product		
Names and quantities of ingredients		
Manufacturer of ingredients		
Lot numbers of ingredients		
Dosage form		
Strength of dosage		
Route of administration		

DO NOT USE THIS SPACE

	Recorded	Label
Date prepared	____	____
Expiration date	____	____
Price	____	____
Name or initials of person preparing product	____	____
Name or initials of person checking product	____	____
Other (please describe)		

For IV (if prepared)		
IV number	____	____
IV stability	____	____
Names and quantities of additives	____	____
Other (please describe)		

DO NOT USE THIS SPACE

4. Are sterile products checked in the Pharmacy for vacuum?

YES NO (Circle your answer)

5. Are sterile products checked in the Pharmacy for clarity?

YES NO (Circle your answer)

6. Are samples of sterile products usually sent to the laboratory for checking?

YES NO (Circle your answer)

XI. Bulk Compounding

1. Is manufacturing of bulk compounds done in your Pharmacy?

YES NO (Circle your answer)

If YES, continue with questions 2 to 4.

If NO, go to section XII.

2. Does bulk compounding represent more than 10% of your total prescription workload?

YES NO (Circle your answer)

3. What information do you record about bulk compounds, and what do you put on the labels?
(Answer by placing X marks in the spaces opposite items listed below.)

	Recorded	Label
Name and quantity of compound		
Names and quantities of raw materials		
Manufacturer of raw materials		
Lot numbers of raw materials		
Control number		
Expiration date		

DO NOT USE THIS SPACE

	Recorded	Label
Name or initials of person compounding	_____	_____
Name or initials of person checking compound	_____	_____
Other (please describe)	_____	_____

4. Are completed compounds stored in quarantine until checked by laboratory?

   YES NO (Circle your answer)

XII. Transfer to Units

1. After medications are produced, what forms of transport do you use to send them to the floors?
   (Circle one or more of letters a to g below.)

   a. Cart or tray

   b. Pneumatic tube

   c. Dumb waiter or mechanical conveyor

   d. Messenger

   e. Delivery by pharmacy personnel

   f. Pickup by nursing personnel

   g. Other (please specify)

If you circled more than one letter, which of them represents the highest percentage of transports to the floors?
(Answer by writing the letter here) _____

DO NOT USE THIS SPACE

2. Are medication delivery records kept?

YES NO (Circle your answer)

2.1 If YES, what information is recorded in them?
(Circle letters below to indicate your answers)

a. Patient's name

b. Patient's hospital number

c. Patient's room number

d. Physician's name

e. Prescription number

f. Date

g. Name and quantity of medication

h. Name or initials of person accepting delivery

i. Other (please describe)

2.2 If delivery records are kept, where can they usually be found?
(Circle one or more of letters a to e below.)

a. On floor

b. In Pharmacy

c. In designated areas outside central Pharmacy

d. In the nursing office on each floor

e. Other (please describe)

DO NOT USE THIS SPACE

3. After delivery has been made to the floor, does the Pharmacy in any way help to organize the administration of the medications to patients?

_____ YES NO (Circle your answer)

_____ If YES, how? (please describe)

XIII. Receiving

1. Does your hospital have a special area set aside for receiving goods?

_____ YES NO (Circle your answer)

1.1 If YES, does this receiving area serve to receive pharmacy goods?

_____ YES NO (Circle your answer)

2. Is bill of lading checked against number of cartons before it is signed?

_____ YES NO (Circle your answer)

2.1 If NO, how do you check in merchandise? (please explain)

DO NOT USE THIS SPACE

3. What do you usually check for on the invoice? (Circle letters below to indicate your answers.)

_____ a. Number of units or cartons

_____ b. Number of items per unit or carton

_____ c. Item description

_____ d. Condition of items

_____ e. Name of sender

_____ f. Invoice code

_____ g. Price per unit

_____ h. Total price

_____ i. Shipping charges

_____ j. Other (please describe)

4. If a discrepancy is found between bill of lading and merchandise actually received, what procedure will you follow? (please explain)

_____

DO NOT USE THIS SPACE

5. When the order is within the pharmacy being checked in, do you compare invoice with merchandise for pricing purposes?

_____ YES NO (Circle your answer)

_____ 5.1 If NO, what do you check your orders agains? (please explain)

6. What is your procedure when a damaged item is discovered?
_____ (please explain)

7. If excess items are sent, do you notify company of error?

_____ YES NO (Circle your answer)

8. After items are checked in and priced (if this is done) will the person checking sign invoice and record date?

_____ YES NO (Circle your answer)

9. After above steps are complete, is invoice forwarded to business office for payment?

_____ YES NO (Circle your answer)

9.1 If NO, does Pharmacy process invoice for payment?

_____ YES NO (Circle your answer)

10. If an item is omitted from shipment, will you order it short through use of Want Book?

_____ YES NO (Circle your answer)

DO NOT USE THIS SPACE

11. If you do not utilize a Want Book, what procedure do you follow to replace shorted items?
(please explain)

XIV. Inventory Control

1. Do you use inventory control cards in your Pharmacy?

YES NO (Circle your answer)

1.1 If YES, do you update inventory cards after items are checked in, with shortage or damaged items noted?

YES NO (Circle your answer)

2. If you utilize some other type of inventory control, please describe.

3. Is a formal inventory ever taken in your Pharmacy?

YES NO (Circle your answer)

3.1 If YES, will your inventory be a storeroom and overstock inventory or a total inventory of everything in the Pharmacy?
(Circle a or b below)

a. Storeroom and overstock

b. Total

DO NOT USE THIS SPACE

XV. Purchasing

1. When you discover that a particular item is needed, what criteria do you use in deciding whether to order direct or short? (Circle letters below to indicate your answer)

_____ a. Urgency of need

_____ b. Quantity needed

_____ c. Price difference between direct and short orders

_____ d. Conditions of contract with supplier

_____ e. Other (please describe)

2. For rarely used items, do you order short (locally)?

_____ YES NO (Circle your answer)

3. If a Want Book is used, what information do you record in it? (Circle letters below to indicate your answer)

_____ a. Name of item

_____ b. Quantity needed

_____ c. Package size

_____ d. Urgency of need

_____ e. Other (please describe)

DO NOT USE THIS SPACE

4. Are shortages of stock in narcotics noted in Want Book? (even though special forms are necessary for ordering)

_____ YES NO (Circle your answer)

_____ 4.1 If NO, please explain how narcotic shortages are treated.

5. Does your Pharmacy have a storeroom for extra quantities of stock?

_____ YES NO (Circle your answer)

5.1 If YES, are shortages in the storeroom treated the same as shortages in Pharmacy?

_____ YES NO (Circle your answer)

6. Do you use any type of stock record form for a floating or continual inventory?

_____ YES NO (Circle your answer)

7. Is a purchase order necessary whenever an order is placed directly with a manufacturer?

_____ YES NO (Circle your answer)

) NOT
SE THIS
?ACE

8. What methods do you use for placing orders?
(Circle one or more of letters a to f below.)

___ a. Telephone to manufacturer and receive copy of order by mail.

___ b. Place order with salesman and receive copy from him.

___ c. Send standard purchase order directly to manufacturer.

___ d. Forward requisition or order to your purchasing department.

___ e. Send order to central storehouse shared with other facilities.

___ f. Other (please describe)

9. Do you have a separate file of purchase orders awaiting arrival of merchandise?

___ YES NO (Circle your answer)

9.1 If NO, how do you file your current purchase orders?
___ (please explain)

10. Do you use a repeating purchase order system for reorders?

___ YES NO (Circle your answer)

APPENDIX B-2

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APPENDIX C

HEALTH CARE FACILITIES SELECTED FOR STUDY

BIRMINGHAM

200 Beds or More
Baroness Erlanger Hospital
Baptist Medical Center

100-199 Beds
Jeff Anderson Memorial Hospital
St. Judes Catholic Hospital

Under 100 Beds
Sam Howell Memorial Hospital
Athens-Limestone Hospital

Extended Care Facilities
Plantation Manor
St. Luke's Nursing Home

BOSTON

200 Beds or More
Peter Bent Brigham Hospital
Memorial Hospital

100-199 Beds
Faulkner Hospital
Thayer Hospital

Under 100 Beds
Mary Lane Hospital
Falmouth Hospital

Extended Care Facilities
Hebrew Rehabilitation
Center for Aged
Cambridge Nursing Home

CHICAGO

200 Beds or More
Chicago Wesley Memorial Hospital
Kenosha Memorial Hospital

100-199 Beds
Delnor Hospital
Beloit Memorial Hospital

Under 100 Beds
DeKalb Public Hospital
Bethany Brethren Hospital

Extended Care Facilities
Fox River Rehabilitation Center
Sandra Nursing Home

DENVER

200 Beds or More
St. Mary's Hospital
St. Luke's Hospital

100-199 Beds
Memorial Hospital of
Laramie County
Poudre Valley Memorial Hospital

Under 100 Beds
Alamosa Community Hospital
Longmont Community Hospital

Extended Care Facilities
Ivy Manor Nursing Home
Eventide Nursing Home

LOS ANGELES

200 Beds or More
Kaiser Foundation Hospital
Santa Monica Hospital

100-199 Beds
Morningside Hospital
West Valley Community Hospital

Under 100 Beds
Garden Park General Hospital
Community Hospital of Gardena

Extended Care Facilities
Kaiser Extended Care
Beverly West Convalescent Hospital

SEATTLE

200 Beds or More
St. Francis Xavier Cabrini Hospital
Emanuel Hospital

100-199 Beds
St. Joseph's Hospital
Vancouver Memorial Hospital

Under 100 Beds
Tri-State Memorial Hospital
West Seattle General Hospital

Extended Care Facilities
Mt. Baker Convalescent Home
Greenwood Convalescent Home

APPENDIX D

PHARMACY TECHNICIAN TASK LIST

The following list of tasks that may be performed by a Pharmacy Technician is based on the previously published task inventory* and includes all tasks listed in that inventory. The tasks shown in parentheses are ones that, according to the results of the survey, are actually performed in very few, if any, pharmacies; their inclusion in a curriculum therefore is unnecessary. The items marked with asterisks are modifications or additions suggested by response to the survey. The additions in most instances supplement the original task descriptions by indicating more specifically the kinds of procedures that are most often followed in performance of the tasks.

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*Robert R. Henrich and Katherine L. Goldsmith, "Hospital Pharmacy Technician Project: Development and Validation of the Task Inventory." Allied Health Professions Project, February 1971. Pp. 2-8.

PHARMACY TECHNICIAN TASK LIST

I. DISPENSING PHARMACEUTICALS

A. Receive the order

1. Re ive direct copy of physician's order

*a. Pick up order from floor

*b. Receive order from messenger or ward personnel

*c. Receive order by pneumatic tube

*d. Receive copy transcribed by nurse

*e. Receive NCR duplication

B. Prepare dispensing records

1. In pharmacy

*a. File copy of medication order

*b. Record information in card file

(2. In ward)

C. Dose preparation: pre-compounded medications

1. Prepare label

*a. Type inpatient medication label

*b. Type outpatient medication label

2. Select drug

*a. Identify and locate drug by trade name

3. Select container

4. Package and label

*a. Cover label with clear tape

5. Perform necessary housekeeping and maintenance

D. Dose preparation: extemporaneously compounded non-sterile medications

1. Prepare label

*a. Type inpatient medication label

*b. Type outpatient medication label

2. Select drugs

*a. Identify and locate drugs by trade names

3. Select equipment

*a. Spatula

*b. Ointment slab

*c. Mortar and pestle

*d. Graduate

*e. Class A balance

*f. Pill counting tray

*g. Class B balance

*h. Pipet

4. Weigh/measure

*a. Employ equipment listed under 3

5. Combine

*a. Employ equipment listed under 3

6. Select container

7. Package, affix label

*a. Cover label with clear tape

8. Perform housekeeping and maintenance tasks

E. Dose preparation: extemporaneously compounded sterile medications

1. Follow all steps under D

2. Employ special techniques appropriate to sterile medications

*a. Use steam autoclave

F. Transport to unit for administration to patients

1. Prepare for mode of transfer to unit

*a. Deliver medications to unit

*(1) Deliver by pneumatic tube

*(2) Deliver by cart or tray

*(3) Deliver by dumbwaiter or conveyer

*b. Prepare medications for pick-up by messenger or ward personnel

(2. Maintain records of delivery)

3. Distribute medications to units

(4. Organize for administration of medications to patients)

5. Return drug to stock

a. Examine

b. Return to stock if unit package

G. Housekeeping and maintenance

1. Return equipment

2. Return bulk medications to stock

3. Clean area

4. Replenish stock

*H. Process medications brought to hospital by patient

*1. Receive medication

*2. Give medication to pharmacist for identification

*3. Label medication as instructed by pharmacist

*4. Return medication to nursing unit for storage

II. MANUFACTURING/BULK COMPOUNDING (All items except Sterile Solutions)

A. Prepare work sheet (batch sheet)

B. Select necessary equipment in accordance with master formula

*1. Spatula

*2. Ointment slab

*3. Mortar and pestle

*4. Graduate

*5. Class A balance

*6. Class B balance

C. Select ingredients

1. Check weights and measures

D. Weight or measure ingredients

*1. Use equipment listed under B

E. Record weights, control numbers, and other pertinent information on work sheet

1. Check work sheet in comparison to master formula

F. Combine ingredients as directed on master formula

(G. Store completed product under quarantine until control laboratory releases it for packaging)

H. Clean and store equipment

I. Package according to master formula instructions

*1. Prepare labels for packages

III. PRE-PACKAGING

A. Analyze the order

B. Check the stock level

C. Determine the type of equipment required

D. Have pharmacist check your procedure

(E. Set up machine for making labels)

F. Select drugs

G. Fill out forms and records

*1. Record dosages, lot number, control numbers, etc.

H. Select container

I. Measure drugs

J. Fill container

*K. Type label and affix to container

L. Have pharmacist check procedure

M. Store and distribute pre-packaged pharmaceuticals

IV. STERILE SOLUTION MANUFACTURING

A. Repeat A through E, Section II - Manufacturing/Bulk Compounding

B. Prepare product under aseptic conditions in accordance with good sterile techniques

C. Fill container under proper conditions

D. Sterilize under correct conditions of temperature, pressure, and time

*1. Use steam autoclave

E. Inspect finished product for clarity and vacuum

F. Label acceptable product with correct labels

G. Send sample to laboratory for checking

H. Store completed product under quarantine until control laboratory releases it.

I. Clean and store equipment

V. PURCHASE, INVENTORY, RECEIVE, AND STORE

A. Purchasing and inventory control

1. Maintain inventory records

*a. Take stock inventory

*b. Update inventory control cards

2. Prepare purchase order on reorder form

3. Maintain purchase order suspense file

*4. Record information in Want Book

B. Receive drugs

1. Check identification

a. Compare drug name, strength, dosage form, etc. to packing slip

2. Check for damage

*a. Hold damaged items for inspection by salesman

3. Check for shortage

*a. Notify pharmacist of shortages

*b. Record omitted items in Want Book to be ordered short

C. Insure proper storage

1. Insure general safety

a. Provide special security storage for restricted drugs

b. Provide quarantine for raw drug materials

2. Check temperature and shelf-life requirements

3. Check flammability requirements

D. Process invoice

1. Check for receipt of material

2. Compare invoice with purchase order and packing slip

*a. Check description, quantity, price, etc.

*b. Sign invoice and record date

3. Distribute for payment

*a. Forward invoice to business office

E. Release from storage

VI. ADMINISTRATION OF PHARMACEUTICALS

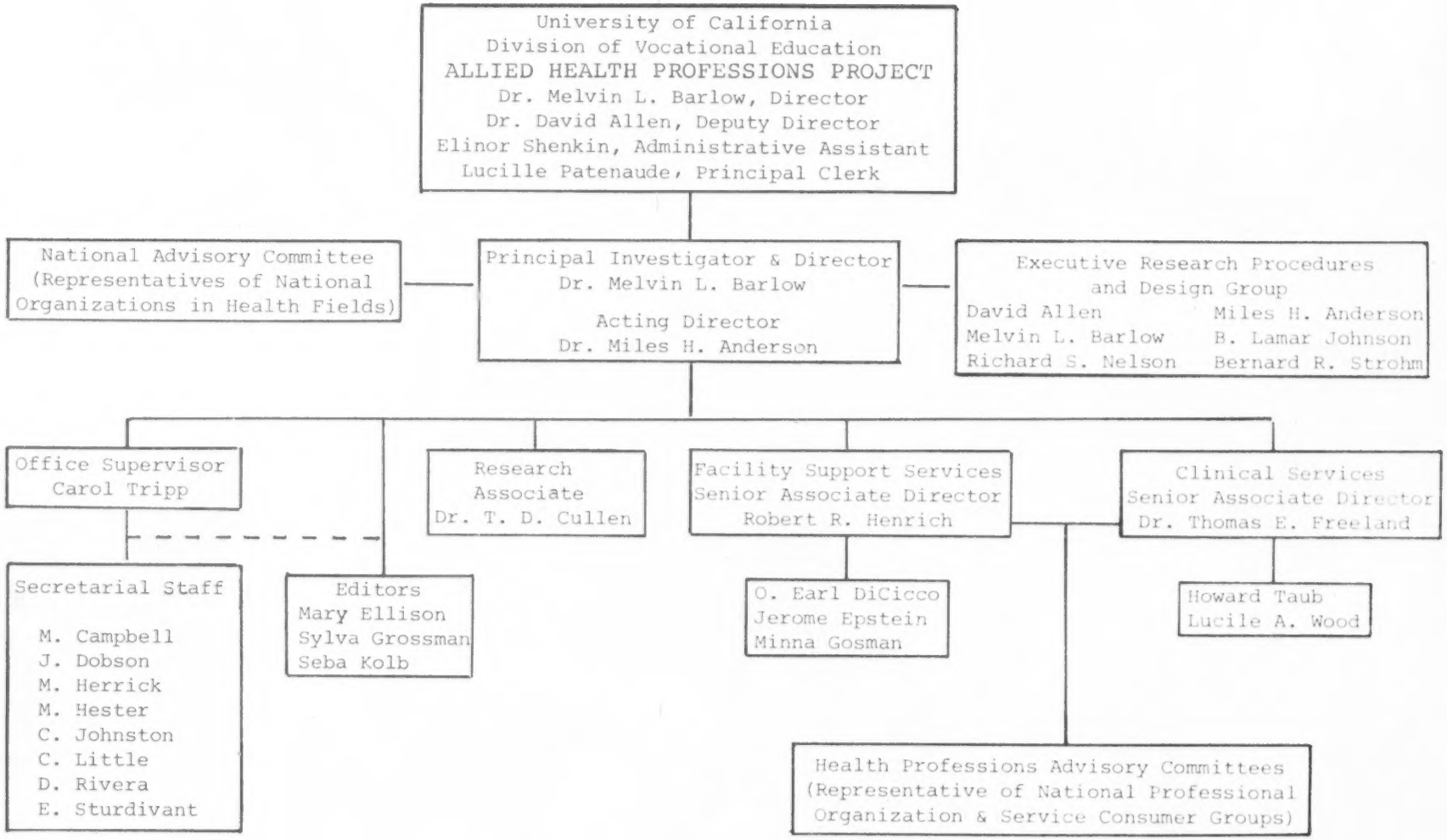
(A. Administer medication)

(1. Verify)

(2. Administer)

(3. Record if administered)

(4. Communicate and record if not taken by patient)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ONE